FREQUENCY OF SCAPULAR DYSKINESIS AND PAIN AMONG OFFICE WORKERS; A CROSS SECTIONAL SURVEY

Qurat Ul Ain[1], Maria Mustafa[2], Maham Zaidi[3], Sarah ehsan[4]

ABSTRACT

BACKGROUND

Office workers are at maximum risk of developing poor posture, musculoskeletal disorders, functional structure impairments. One such suspected impairment is scapular dyskinesia and pain. Despite the chances of other musculoskeletal disorders in office workers, the current study focused biomechanical disadvantages scapular region due to desk work.

OBJECTIVE

The objective of the study was to determine frequency of work related scapular dyskinesis and pain in office workers.

METHODS

This was a cross sectional survey which was conducted among 110 office workers, both male and female age range of 25 to 50 years. The data was collected through convenience sampling technique by self-administered questionnaire which was extract acted from previous studies conducted on similar objectives. The data was analyzed in Statistical Package for Social Sciences 20.0 in which qualitative variables were measured for frequency and percentages and quantitative for mean and standard deviation. The outcomes of interest were also shown in graphical presentation.

RESULTS

The results regarding lateral scapular slide test at 90 degrees showed that there were 29.1% of office workers with positive test while 70.9% had normal measurements. The results regarding neck disability index classification showed that there were 36.4% office workers with mild disability, 44.5% with moderate disability while 19.1% were presenting severe disability.

CONCLUSION

The frequency of scapular dyskinesia was common among office workers involving around 30% of total population. Furthermore, functional impairment was reported more than pain.

KEYWORDS

Scapular Dyskinesia, Scapular Pain, Physical Therapy, Neck Disability Index, DASH

INTRODUCTION

Work-related musculoskeletal issues and complaints are a major health concern in many countries. These issues may have an impact on people's work performance and days off. (1).

Scapular dyskinesis is defined as variations in the scapula's typical position and scapular motion patterns during scapulohumeral movements. Asymmetric scapular postures are referred to as dysskinesis. Kibler categorises dyskinetic patterns into three kinds. Type I is distinguished by the prominence of the scapula's inferomedial border because of an abnormal posterior tilt of the scapula; when this type occurs alone, the scapula may be lower than the opposite side. The extension of the scapula's whole medial border distinguishes type II. Superior labrum injuries may cause several kinds of damage (SLAPs). Type III is distinguished by an upward rotation of the scapula's superomedial border around the scapula; this type may be noticed when the acromiohumeral space narrows or suspected rotator cuff problems occur. Also Type IV is characterised by normal scapular position and mobility.(2)

Dykinesis may be caused by a number of reasons, including bone and joint issues and neurological issues. Thoracic kyphosis and clavicle fracture nonunion/malunion are examples of bone-related problems. Joint-related issues include high-grade

[1] Senior lecturer, Riphah International University, Lahore Campus, qurat.ain@riphah.edu.pk
[2] Senior lecturer, University of Management and Technology
[3] Senior Physiotherapist, Indus Hospital Bedian, Mahamzaidi123@gmail.com
[4] Assistant Professor, Riphah International University, Sarah.ehsaan@gmail.com

acromioclavicular instability, arthrosis, glenohumeral joint derangement, and neurologic factors such as cervical radiculopathy or spinal nerve palsy. Furthermore, discomfort, soft tissue tightness, strength imbalances, muscular fatigue, and an unsatisfactory posture may all lead to aberrant scapular kinematics.(3).

It is common for office workers to have problems with their posture because of their work. Neck and shoulder pain is common in the general public. Job-related pain has a lot to do with absenteeism and work quality, which affects not only the patient's health but also the patient, his or her family, and society's money. There are some things that could cause shoulder pain that aren't inside your body, like repeated overhead use that is more than 60° of shoulder elevation, continuous overhead work, and heavier weights that are lifted above shoulder height. This includes things like having a forward head position, rounded shoulder posture, different movement of the shoulder and muscles that are working. Scapular dyskinesis is more likely to happen if these things happen. With a forward head posture, the angle of the thoracic kyphosis changed, which would move the scapula.(4)

Another cause of neck discomfort is when the scapula shifts downward. While not moving the weight of an upper-limb load to the sternoclavicular joint, scapular downward rotation lengthens the upper trapezius muscles. It also stiffens the levator scapulae muscles, putting extra strain on the cervical spine. Over time, repeated and severe stress in the neck region produces microscopic damage, resulting in neck discomfort and a restricted range of motion. There is a link between chronic neck and shoulder discomfort and scapular dyskinesis. The scapula connects the shoulder to the cervical region. It is important for both mobility and stability in the neck/shoulder region. The relationship between scapular dyskinesis and neck discomfort has been well-documented in several research. People with scapular dyskinesis are more prone to have discomfort in their shoulders, scapulae, and neck.(5)

The predisposing factors for neck pain are considered to be the sitting for the longer time period and the neck flexion working in industries of health and others. However the office workers are the exception as they have not been tested yet (6).

Objective:

The objective of the study was to determine frequency of work related scapular dyskinesis and pain in office workers.

Material and Methods:

It was a cross sectional survey completed in 6 months. The data was collected from 54 participants using nonprobability convenient sampling working in banks and admin office of university. Both male and female genders age ranges from 25 to 50 years having a routine of 30 working hours per week with work experience of working from last 1 year with intact shoulder ranges were included in the study. Obese office workers with body mass index more 39kg/m2 having upper limb surgery and undergoing physiotherapy treatment with any structural, systematic or neurological impairments were excluded. study settings were visited to conduct on spot survey handout survey. The questionnaire is based on demographics, screening tests and self-evaluating scales to assess status of shoulder and hand function. Due to technical nature of survey, it was conducted by principal researcher, in this case me, to employ screening or offer technical support. Important screening and assessment measures was following; This screening test was used to test scapular dyskinesis in various loading position with arm abduction at 90^0, 45^0 and 0^0. Distance from thoracic vertebra to inferior angle of scapula was measured in these positions(7).This is short version of disabilities of arm, shoulder and hand questionnaire to measure shoulder hand function. This is 11 item scale where each item is scored from 1, means no difficulty at all, to 5, means unable to do(8). This scale screened cervical spine health in terms of its function that is measured through question related to daily activities, pain and concentration. Higher score indicate greater

disability(9).This scale is 11-point scale directly measuring pain. 0 means no pain and 10 means worst imaginable pain. This is also subjective measure(10). SPSS 20.0, the Statistical Package for Social Sciences, was used to manage the data. The frequency/proportion of the qualitative aspects was assessed. The mean and standard deviation of the quantitative data were calculated. Graphical representation was in the form of pie charts, bar charts, and, where suitable, histograms with normal curves.

RESULTS:

The results regarding gender showed that there were 35.5% of male office works and 64.5% were females. The results showed that there were 78.2% of office workers doing full time jobs while those of 21.8% were doing it as part time. The results regarding lateral scapular slide test at 0 degrees showed that there were 10.9% of office workers with positive test while 89.1% had normal measurements. The results regarding lateral scapular slide test at 45 degrees showed that there were 30% of office workers with positive test while 70% had normal measurements.

The results regarding lateral scapular slide test at 90 degrees showed that there were 29.1% of office workers with positive test while 70.9% had normal measurements. The results regarding neck disability index classification showed that there were 36.4% office workers with mild disability, 44.5% with moderate disability while 19.1% were presenting severe disability.

Results regarding numeric rating pain scale showed that there were 42.7% office workers having mild pain while those of 57.3% had moderate pain in their neck and/ or upper thoracic region. The descriptive statistics regarding quantitative continuous variables showed that mean and standard deviation was found to be 23.18+2.22 for age, 40.67+3.22 for working hours per week, 6.09+2.55 for score of neck disability index, 36.76+6.51 for DASH Score and 4.06+1.41 for numeric pain rating scale.

DISCUSSION

The findings of study were important because it pinpointed an area of functional and structural impairment in office workers. In current lifestyle of work, office working is the most common style. All professions are increasingly coming to table. Even the filed work is progressing towards prolonged sitting and computer work with the advent of big robotic machines which are to be controlled sitting inside them. There are tremendous previous studies which has highlighted work related musculoskeletal risk among office worker time and again. This study is important in a sense that it focused the biomechanical disadvantage that may be leading to worsening of these work-related disorders in office workers.

The current study showed that most office workers were doing it full time job which is natural in Pakistan, because the part time job of office work is less available due to the fact that most associations do it only in one shift. Other demographics showed that females were more than males which also related to Pakistan norms where females prefer indoor jobs and males mostly can engage themselves every kind jobs including field works. The office workers in our study was on average were working from 6 years with an average around 40 hours which is similar to studies found in previous literature at national and international level.

The objective measurement such as lateral scapular slide testing, disability of arm shoulder hand DASH score, overall pain score and score of Neck Disability index were not very associated with each other. Lateral scapular slide test was more found positive in provocative postures such as angles of 45 or 90, while at resting position and position of ease of 0 degree was less common to be positive. The disability scale showed a large scale of functional impairment. Both neck disability and DASH represented it. Although office workers were going on working their routine work without addressing them but when tested there was devastating results. This may be due deficit of awareness and education about the

symptoms, severity and seriousness of their problem.(11-14)

Overall pain scale showed no person spared from pain even if it was of mild state. This may be due to generalized health related issues of musculoskeletal regions. This is alarming situation, where both the office workers and organizations should work on resolving it. It would be affecting their performance and optimum outcomes which were not measured in this study.

Although DASH score was measured, it actually is indicated with complaints of shoulder. As this study had focused on upper thoracic spine including scapular biomechanics, the score indicated there should be further studies on overall upper extremity function. The impairments of upper extremity, neck or upper thoracic spine can affect each other in a reciprocal manner. Therefore, an holistic approach of screening should be proceeded.

In previous literature, a review discussed regarding musculoskeletal disorders to be most common in office workers. This review revealed that millions lot more of office workers were suffering from health-related problems among which musculoskeletal problems were the topmost. Furthermore, this review studied position of scapula at rest and during performance of different activities in various anatomical planes. It assessed pain, changes in posture, upper extremity function, deficit of ergonomic training or deployment of ergonomic principles among civil office workers. Scapular dyskinesia, rapid upper limb assessment, back and upper extremity pain, physical function and disability of neck as measured by self-reported NDI were discussed. Like current study lateral scapular slide testing was also done which showed a significant involvement of scapular dyskinesia.(15-18)

This study made remarks about general atmosphere, working environment and ergonomic awareness and application to be reason of high health related risk especially of musculoskeletal area among which upper extremity, upper back and scapula including neck were most affected.

CONCLUSION

The frequency of scapular dyskinesia was common among office workers involving around 30% of total population. Furthermore, functional impairment was reported more than pain.

There should be awareness material placed on offices for ergonomic awareness**.** Screening camps should be arranged in order to help office workers who are vulnerable and the ones having health related musculoskeletal issues. The study covered primarily thoracic spine and scapular region. There should be further studies with a holistic approach. Data collection was a challenge due to fact that offices were not convenient regarding objective screening.

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